STUDENT PAPER

Availability of antiretroviral therapy is associated with increased uptake of HIV testing services

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Voluntary counselling and testing (VCT) is an important tool in HIV prevention efforts and in the identification of HIV-infected individuals for care and treatment services.[1] But despite the central role of VCT in the response to HIV/AIDS, less than 20% of South Africans have been tested for HIV.[2] Although there are substantial barriers to seeking VCT, including quality of services and AIDS-related stigma,[3] improving VCT rates remains a critical part of the response to the HIV/AIDS epidemic.

Recently there has been particular interest in the potential influence of access to antiretroviral therapy (ART) on demand for HIV testing services.[4] It has been suggested that the availability of effective treatment for HIV/AIDS may help motivate individuals to find out their HIV status.[5] However, this possibility remains largely hypothetical and there have been few studies investigating this question. In light of the importance of VCT as an entry point to HIV prevention interventions and treatment services, the possible impact of ART availability on VCT uptake has major implications for the public health response to HIV/AIDS in South Africa. We investigated whether the availability of ART was associated with HIV testing among individuals attending the site B day hospital in Khayelitsha near Cape Town, the setting for a well-publicised antiretroviral pilot programme that has been in operation since May 2001.[6]

What we did

We conducted a cross-sectional study during July 2004 among men and women attending the site B day hospital for any reason. In order to be eligible for the study individuals had to be over the age of 14 years and be willing to give signed consent after reviewing an informed consent letter at the beginning of the survey. Interviews lasted 10 - 15 minutes and were conducted in private consulting rooms in the clinic to help maintain confidentiality. Three female interviewers and one male interviewer conducted the surveys in Xhosa or English. A convenience sampling method was employed and participants were approached in waiting areas and pharmacy queues, and as they were exiting the facility. Data were analysed using the statistical programme Stata version 8.0 (College Station, Texas, USA). In the analysis, Student's *t*-tests were used to compare means, chi-square and Fisher's exact tests were used to compare proportions, and logistical regression was used to examine associations between knowing someone on ART and HIV testing after adjusting for participant demographic characteristics.

This article is based on a 4th-year public health research project by Coceka Mfundisi, Nirasha Chiranjan, Charl Rodrigues and Launel Kirchner, supervised by Landon Myer and Peter Bock of the School of Public Health and Family Medicine, University of Cape Town.

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What we found

A total of 184 individuals were interviewed. The mean age was 28.6 years (range 15 - 63 years) and two-thirds (N = 121) were female (see Table I). Most of those interviewed (76%, N = 140) had completed at least primary school education. Overall, 49% of participants (N = 91) reported that they knew a friend or family member infected with HIV/AIDS, while 74 (40%) said that they knew someone taking ART.

Of those interviewed, 51% said that they had been tested for HIV (N = 94). Among those who had not been tested, 92% (N = 83) said that they felt it was important to be tested for HIV, 68% (N = 61) knew where they could be tested, and 54% (N = 49) said they had discussed testing for HIV with their partners. Among those who had been tested for HIV, most (N = 57, 61%) said they were referred for testing from other health services (mostly prevention of mother-to-child transmission, tuberculosis or sexually transmitted infection services), and the remaining 39% (N = 37) were self-referred for VCT.

Across all participants, individuals who knew someone on ART were slightly more likely to be tested for HIV — 58% of those who knew someone on ART had been tested compared with 48% of those who did not know someone on ART (p = 0.17). This association was statistically significant among women (68% versus 48% respectively, p = 0.035), but not among men. Comparing individuals who were self-referred to VCT services with those who had not been tested, receiving VCT was associated with knowing someone receiving ART (41% v. 23%, p = 0.041). These associations persisted after adjusting for participant age and education (adjusted odds ratio 2.19, 95% confidence intervals (CIs): 1.00 - 4.79).

Table I. Participant demographic characteristics, sexual behaviour, and knowledge and beliefs regarding HIV and ART, overall and by HIV testing status, among individuals attending the site B day hospital in Khayelitsha

	All participants				Participants tested for HIV		
	Total (*N* = 184)	Not tested for HIV (*N* = 90)	Tested for HIV (*N* = 94)	*p*-value	Referred for testing from health service (*N* = 56)	Self-referred for testing (*N*= 38)	*p*-value (self-referred v. not tested)
Mean age (range)	28.5 (15 - 63)	28.1 (16 - 63)	29.0 (15 - 57)	0.49	28.3	30.2	0.30
Female gender (*N* (%))	121 (66)	54 (60)	67 (71)	0.11	43 (77)	24 (63)	0.74
At least some secondary education (*N* (%))	140 (76)	58 (64)	82 (87)	< 0.01	50 (89)	32 (84)	0.03*
Married or living with partner (*N* (%))	38 (21)	20 (22)	18 (19)	0.61	11 (20)	7 (18)	0.81
Sexually active (*N* (%))	181 (98)	87 (97)	94 (100)	0.12*	56 (100)	38 (100)	1.0
Mean number of partners in past 6 months (range)	1.2 (0 - 8)	1.2 (0 - 7)	1.2 (0 - 8)	0.98	1.1 (0 - 7)	1.2 (0 - 8)	0.79
Know someone with HIV/AIDS (*N* (%))	91 (49)	33 (37)	58 (62)	< 0.01	34 (61)	24 (63)	< 0.01*
Know someone on ART (*N* (%))	74 (41)	31 (35)	43 (46)	0.15	22 (39)	21 (55)	0.05*
Among men (*N* (%))	25 (41)	15 (44)	10 (37)	0.61*	3 (23)	7 (50)	0.76*
Among women (*N* (%))	49 (41)	16 (30)	33 (49)	0.04*	19 (44)	14 (58)	0.02*
Negative attitudes towards HIV-infected people (*N* (%))	22 (12)	14 (16)	8 (9)	0.18*	6 (11)	2 (5)	0.15*
Benefits of knowing HIV status							
None (*N* (%))	77 (44)	41 (48)	36 (40)	0.24	24 (45)	12 (33)	0.45
Treatment for HIV (*N* (%))	19 (11)	6 (7)	13 (15)		8 (15)	5 (14)	
Protective of self/others or important to know (*N* (%))	78 (45)	38 (45)	40 (45)		21 (40)	19 (53)	
Believe availability of ART would motivate people to be tested for HIV (*N* (%))	54 (29)	23 (26)	31 (33)	0.27	17 (30)	14 (37)	0.21*

* *p*-values from proportions marked with an asterix (*) are calculated using Fisher's exact test; all other *p*-values for proportions are based on chi-square tests; *p*-values for the comparison of means are from *t*-tests.

Discussion

These results, showing that people who know someone taking ART are more likely to be tested for HIV, suggest that the availability of ART may lead to an increase in the uptake of counselling and testing services. To date there have been few studies investigating this question, and these data provide a valuable insight into the possible links between the public sector antiretroviral roll-out and ongoing HIV prevention efforts. VCT services are an important tool for HIV prevention, and there is growing evidence that use of VCT is associated with subsequent risk reduction. If this is the case, then the increase in VCT uptake among individuals who know someone on ART may demonstrate how HIV treatment services can enhance existing HIV prevention activities.

This analysis focuses on how knowing someone on ART is associated with HIV testing behaviours; we did not assess the association between general knowledge of ART and VCT uptake. However it is possible that awareness of the availability of ART, rather than knowing a particular individual receiving HIV treatment, may be the critical factor in influencing individuals to seek VCT. This difference has important implications for public health interventions, and future studies in this area should seek to determine this possibility.

These results should be interpreted with caution for several reasons. The data are drawn from a small, clinic-based sample of participants, and these findings require additional investigation in population-based studies where both the uptake of VCT services and the awareness of ART availability may be somewhat lower. In addition, individual decisions to seek HIV testing are likely to be influenced by a range of psychological and interpersonal factors that were not measured here. Future research should examine how knowledge of ART availability in general, and knowing someone on ART in particular, influences perceptions of risk, communication with partners regarding HIV, and perceived benefits of HIV testing.

Although further research is needed, these findings may be an important example of the hypothesised synergy between HIV treatment and prevention initiatives, with significant implications for the fight against HIV/AIDS in South Africa. If the public sector roll-out of ART leads to increased rates of HIV testing then it is possible that increasing the availability of treatment services may have significant 'spin-off' benefits for public health, with implications in turn for estimates of the cost-effectiveness of ART as a public health intervention. Given the impact of HIV/AIDS on the health of the South African population, these possibilities warrant further attention.

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